System and Method for Handling Asynchronous Transfer Mode Cells

Abstract of the Disclosure

A system and method for receiving ATM cells is provided. Initially an ATM cell is received by a network element. Next, a hardware filter examines the cell header and determines whether the VPI or VCI (virtual path identifier, virtual channel identifier) extracted therefrom is contained within a hardware lookup table stored within the processor's memory. If it is determined that the received cell's VCI and/or VPI are found within the hardware lookup table, the processor outputs the address of the 'flow' data structure associated with the identified values. However, if it is determined that the cell's VPI/VCI are not found in the hardware lookup table, then the cell is passed to a secondary software filter for additional searching. Next, the software filter examines the cell header and identifies the appropriate flow for the VPI/VCI included therein. By limiting the hardware lookup table to be searched by the hardware filter, the system of the present invention significantly reduces the time and resources required to perform this portion of the search. For cell headers outside the range of the hardware lookup table, additional software filtering may be performed to identify the appropriate output flow.

Figures